

Trend Study 25R-3-03

Study site name: Upper Meadow Estates.

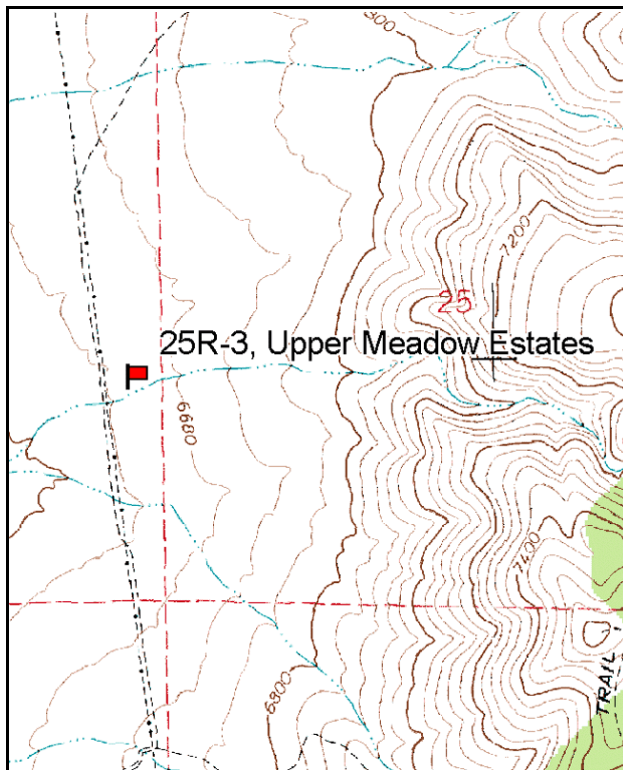
Vegetation type: Winter Fat.

Compass bearing: frequency baseline 79 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (71ft), line 3 (34ft), line 4 (59ft), line 5 (95ft). No rebar.

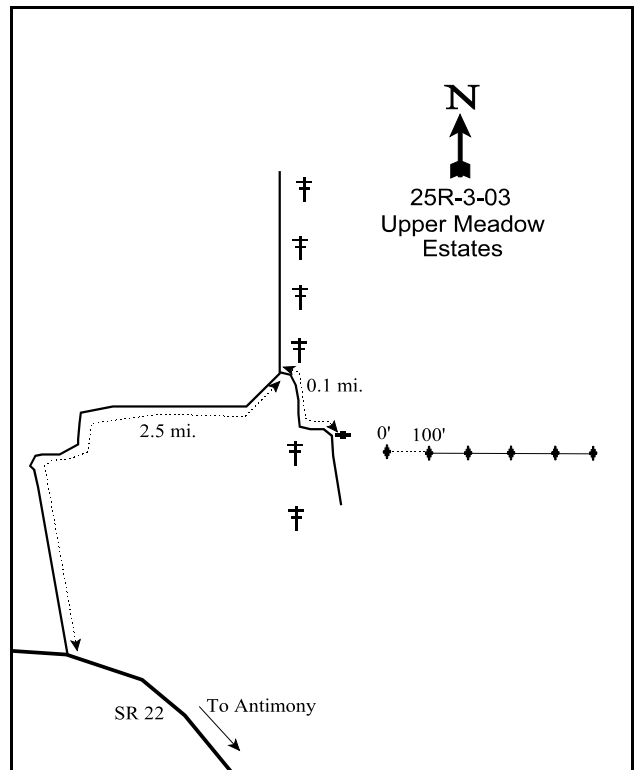
LOCATION DESCRIPTION

Starting from the junction of SR 22 and Highway 62, drive towards Antimony on SR 22 to mile marker #6. From mile marker #6, drive 0.6 miles to a road going left (north) off of SR 22. Drive on this road for 2.5 miles to second set of power poles crossing the road. From the power poles drive 0.1 miles to the witness post on the left side of the road. From the witness post walk 6 paces east to the 0-foot stake.



Map Name: Angle

Township 30S, Range 2W, Section 26



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4224479 N, 415118 E

DISCUSSION

Upper Meadow Estates - Trend Study No. 25R-3

This study was established in 1997 to monitor winter range just north of Antimony. It has a gentle slope of 5% to 10% and an elevation of 6,600 feet. The site slopes to the southwest. This area is used by wintering deer and elk and grazed by cattle. Two study sites were established in 1997, one at a lower elevation and this site about 1 mile further east at a higher elevation. The purpose of these studies was to monitor heavy elk use of this area in competition with livestock. This site was drill seeded sometime prior to the 1997 reading, but no seeded grasses or forbs are found on the site. This site receives a little more wildlife use than the Lower Meadow Estates study. Pellet group data from 1997 estimated 2 deer, 19 elk and 27 cow days use/acre (5 ddu/ha, 47 edu/ha, and 67 cdu/ha). Pellet group data from 2003 estimated much lower use at 1 deer, 3 elk and 12 cow days use/acre (3 ddu/ha, 7 edu/ha, and 29 cdu/ha). Wildlife use may be higher during severe winters.

Soil at the site is deep with an effective rooting depth estimated at 17.4 inches. Texture is a sandy loam which is neutral in reaction. Organic matter is low at only 1%. Vegetation and litter cover are low with abundant bare ground exposed. Rock and pavement are concentrated on the surface and accounted for 28% of the ground surface in 1997 and 20% in 2003. Erosion is a problem on this site. Drill rows are still visible and are oriented down slope instead of across the slope which has increased erosion problems on this site. Soil movement, pedestalling, flow patterns, and rills are apparent and the erosion condition class was determined to be moderate in 2003. Much of the soil deposition and runoff onto the site originates from areas above and to the east of the study area.

This site supports a mix of Wyoming big sagebrush and winterfat. Wyoming big sagebrush occurs in small numbers, estimated at only 240 plants/acre in 2003. Use of sagebrush was moderate in 1997 but mostly light in 2003. Vigor was good in 1997 and percent decadence low at 10%. All sagebrush sampled in 2003 were classified as decadent and 83% of those were rated as dying.

Winterfat is fairing much better but the population did decline from 7,500 plants/acre in 1997 to 5,920 in 2003. Use has been moderate to heavy since 1997 but vigor has remained good and no decadent plants were sampled either year. Average height and crown measurements have doubled since 1997, averaging 10 inches in height with a crown diameter of 12 inches. The only other shrubs on the site include low numbers of narrowleaf low rabbitbrush, broom snakeweed, and a couple species of cactus.

The herbaceous understory is much more productive compared to the Lower Meadow Estates study. Total grass cover was estimated at 10% in 1997 and 12% in 2003. Composition is poor however with the warm season, blue grama, providing nearly all of the grass cover. Indian ricegrass, sand dropseed, and needle-and-thread occur rarely. A few seeded Russian wildrye were also encountered in 2003. Perennial forbs are lacking. Only scarlet globemallow is fairly abundant. Total forb cover was estimated at only 2% in 1997 and less than 1% in 2003.

1997 APPARENT TREND ASSESSMENT

Soil condition on this site is poor with abundant bare ground exposed. Erosion is apparent. The browse component consists of a few Wyoming big sagebrush and winterfat. Both populations are moderately to heavily browsed but in good vigor and appear to be stable. The herbaceous understory is poor but much more productive compared to the Lower Meadow Estates site. Total grass cover was estimated at over 10%. The low growing, warm season, blue grama is the only abundant species however. The forb composition is poor and dominated by annuals. The only perennials found include scarlet globemallow and a *Cryptantha*.

2003 TREND ASSESSMENT

Trend for soil is stable but in poor condition. Average cover of bare ground increased slightly but vegetation and litter cover increased. Even though the trend is stable, erosion is ongoing and the erosion condition class was determined to be moderate in 2003. Browse trend is down slightly. Winterfat density declined by 21% due primarily to a reduction in young plants. Use remains moderate to heavy but vigor is good. Mature plants are larger with average height and crown measurements doubling in 2003. The small population of Wyoming big sagebrush has become entirely decadent with 83% of the plants sampled were classified as dying (>50% crown death). Trend for the herbaceous understory is down. Sum of nested frequency of perennial grasses declined including a significant drop in the nested frequency of blue grama which provides nearly all of the grass cover. Forbs are lacking and sum of nested frequency of perennial forbs declined slightly.

TREND ASSESSMENT

soil - stable but very poor (3)

browse - down slightly (2)

herbaceous understory - down (1)

HERBACEOUS TRENDS --

Management unit 25R, Study no: 3

Type	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
G	<i>Bouteloua gracilis</i>	_b 355	_a 276	9.82	11.99
G	<i>Elymus junceus</i>	-	10	-	.10
G	<i>Oryzopsis hymenoides</i>	_b 20	_a 1	.11	.03
G	<i>Sporobolus cryptandrus</i>	_b 27	_a 1	.36	.00
G	<i>Stipa comata</i>	_a 9	_b 21	.12	.32
Total for Annual Grasses		0	0	0	0
Total for Perennial Grasses		411	309	10.42	12.44
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F	<i>Chenopodium fremontii</i> (a)	_b 60	_a -	.66	-
F	<i>Chenopodium leptophyllum</i> (a)	_b 62	_a -	.31	-
F	<i>Cryptantha</i> spp.	14	1	.09	.03
F	<i>Eriogonum cernuum</i> (a)	_b 61	_a 5	.67	.18
F	<i>Euphorbia</i> spp.	-	2	-	.00
F	<i>Halogeton glomeratus</i> (a)	-	-	.00	-
F	<i>Lappula occidentalis</i> (a)	_b 37	_a -	.08	-
F	<i>Navarretia intertexta</i> (a)	_b 9	_a -	.05	-
F	<i>Phlox longifolia</i>	-	3	-	.00
F	<i>Salsola iberica</i> (a)	2	-	.03	-
F	<i>Sphaeralcea coccinea</i>	26	24	.27	.64
F	<i>Townsendia</i> spp.	-	2	-	.00

T y p e	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
	Total for Annual Forbs	231	5	1.82	0.17
	Total for Perennial Forbs	40	32	0.37	0.68
	Total for Forbs	271	37	2.19	0.86

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Management unit 25R, Study no: 3

T y p e	Species	Strip Frequency		Average Cover %	
		'97	'03	'97	'03
B	Artemisia tridentata wyomingensis	9	9	2.49	2.57
B	Atriplex canescens	0	4	-	.79
B	Ceratoides lanata	64	67	1.03	3.66
B	Chrysothamnus nauseosus	1	0	-	-
B	Chrysothamnus viscidiflorus stenophyllus	13	14	.45	.33
B	Gutierrezia sarothrae	10	6	.07	.07
B	Opuntia spp.	1	1	-	-
	Total for Browse	98	101	4.05	7.43

CANOPY COVER, LINE INTERCEPT --

Management unit 25R, Study no: 3

Species	Percent Cover
	'03
Artemisia tridentata wyomingensis	2.09
Atriplex canescens	1.73
Ceratoides lanata	4.11
Chrysothamnus viscidiflorus stenophyllus	.28
Gutierrezia sarothrae	.01

BASIC COVER --

Management unit 25R, Study no: 3

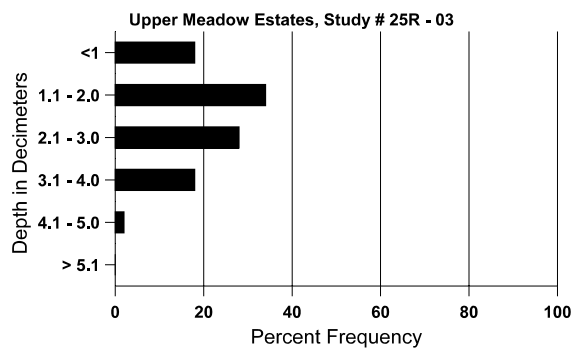
Cover Type	Average Cover %	
	'97	'03
Vegetation	17.38	19.97
Rock	11.63	8.37
Pavement	16.44	11.80
Litter	11.29	17.84
Cryptogams	1.50	.13
Bare Ground	40.90	45.42

SOIL ANALYSIS DATA --

Management unit 25R, Study no: 3, Study Name: Upper Meadow Estates

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
20.4	66.0 (18.0)	7.1	71.4	14.1	14.6	1.1	10.1	176.0	0.5

Stoniness Index



PELLET GROUP DATA --

Management unit 25R, Study no: 3

Type	Quadrat Frequency		Days use per acre (ha)	
	'97	'03	'97	'03
Rabbit	1	1	-	-
Elk	13	1	19 (47)	3 (7)
Deer	4	2	2 (5)	1 (3)
Cattle	1	4	27 (67)	12 (29)

BROWSE CHARACTERISTICS --
Management unit 25R, Study no: 3

		Age class distribution (plants per acre)					Utilization				
Y e a r	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
<i>Artemisia tridentata wyomingensis</i>											
97	200	20	-	180	20	140	40	10	10	0	16/31
03	240	-	-	-	240	60	8	0	100	83	19/37
<i>Atriplex canescens</i>											
97	0	-	-	-	-	-	0	0	-	0	-/-
03	80	-	-	80	-	-	0	0	-	0	21/37
<i>Ceratoides lanata</i>											
97	7500	20	1060	6440	-	-	63	27	-	0	5/6
03	5920	-	20	5900	-	40	35	22	-	0	10/12
<i>Chrysothamnus nauseosus</i>											
97	120	-	-	120	-	-	100	0	-	0	-/-
03	0	-	-	-	-	-	0	0	-	0	-/-
<i>Chrysothamnus viscidiflorus stenophyllus</i>											
97	560	-	-	380	180	60	0	0	32	21	8/12
03	560	-	-	300	260	240	0	0	46	29	7/13
<i>Gutierrezia sarothrae</i>											
97	340	-	20	320	-	-	0	0	-	0	6/7
03	140	-	20	120	-	-	0	0	-	0	8/8
<i>Opuntia spp.</i>											
97	40	-	-	40	-	-	0	0	-	0	-/-
03	20	-	20	-	-	-	0	0	-	0	5/15
<i>Pediocactus simpsonii</i>											
97	0	-	-	-	-	-	0	0	-	0	-/-
03	0	-	-	-	-	-	0	0	-	0	1/2